

Swift Development of Immersive Learning Scenarios

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celstec.org



Swift development of Immersive Learning Scenarios(ILS)

Overview

- Immersive Learning: characteristics + motives
- Shortcomings of existing platforms for ILS
- Exploration for solutions (brief)
- State of the art at CELSTEC: EMERGO
- Experience CSI-Heerlen
- EMERGO-toolkit



Immersion

Confucius (500 bC)

"Tell me and I will forget,

Show me and I may remember,

Involve me and I will understand ..."



Immersive Learning: characteristics & motives

Experiencing emotions and reasoning in **Authentic Environments**

Active and interactive participation

Develop conceptual understanding (practicing: models-simulations)

Ability to perform scientific inquiry

Develop understanding about inquiry (reflection + natural feedback)

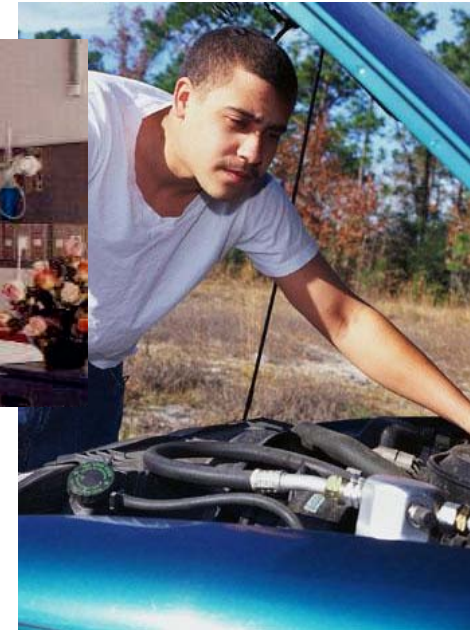
Solving authentic problems working on **authentic tasks**

All about: Authenticity - suspension of disbelief - motivation



Authentic Environments

= **realistic** problem situations, where learners participate as **actor** and constantly are being confronted with the **consequences** of their actions when **applying** knowledge and skills in finding solutions

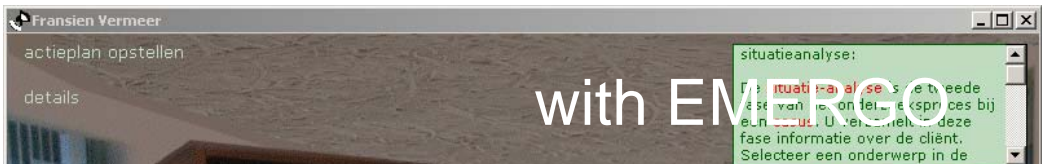


Authentic tasks

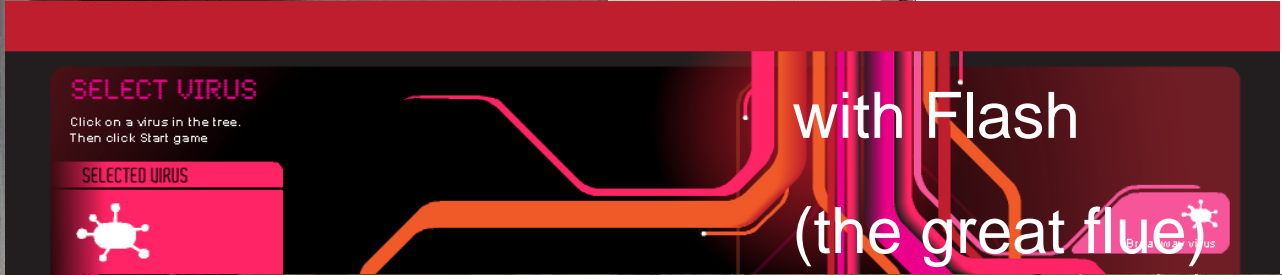
Characteristics (Herrington, Oliver, Reeves, 2002)

- real-world relevance
- ill-defined (learners define subtasks themselves)
- complex tasks (time consuming)
- different perspectives (variety of resources)
- opportunity to collaborate
- opportunity to reflect
- integrated & different subject areas, beyond domain-specific outcomes
- real-world assessment
- competing solutions, diversity of outcomes
- polished products





with EMERGO

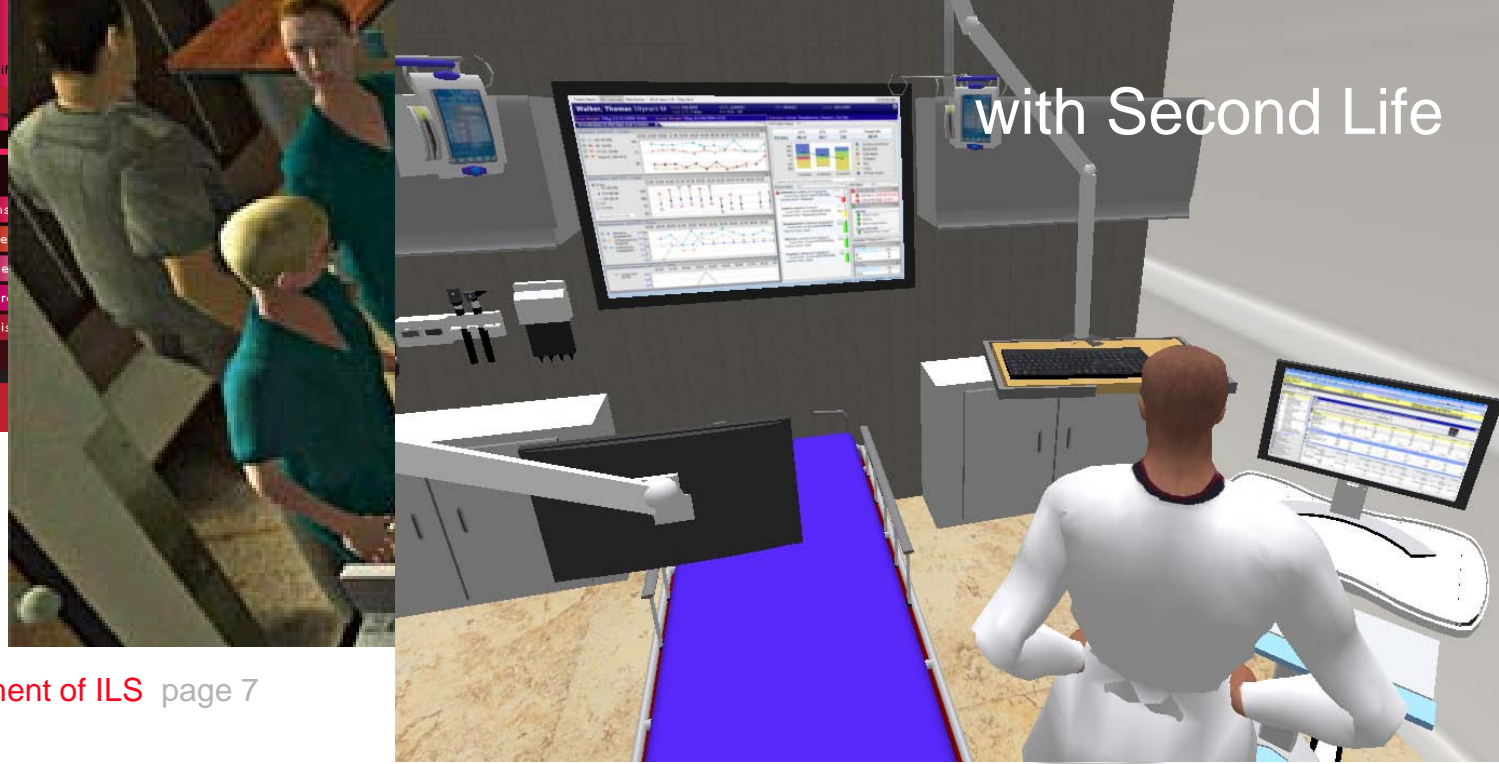


with Flash

(the great flue)



with Second Life



Shortcomings of existing platforms for ILS

Inflexible (monolithic & hard to adapt)

Not developed for supporting ILS (no educational glue)

Difficult to use (steep learning curve for all stakeholders)

Lack of standardisation

Expensive (e.g., licences)

Incomplete

Summarized: too few functionality and too high costs

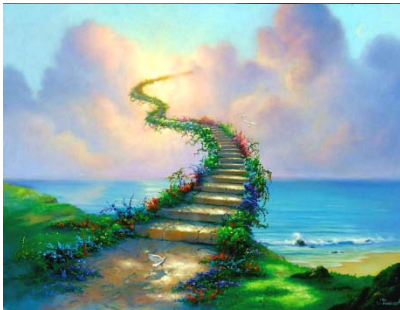


Exploration for solutions: method + findings

a – wait

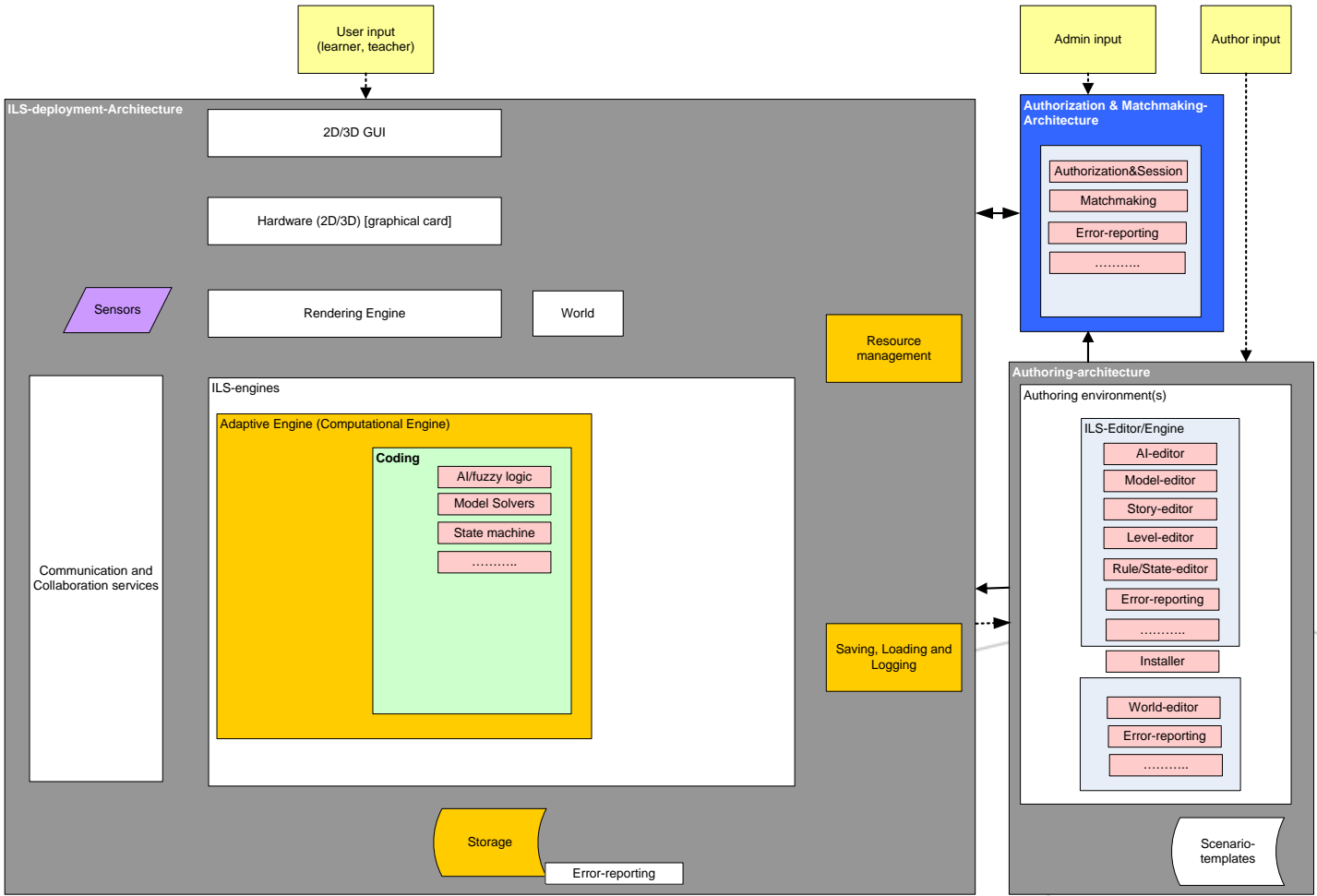
b – explore existing platforms/engines

c – built own

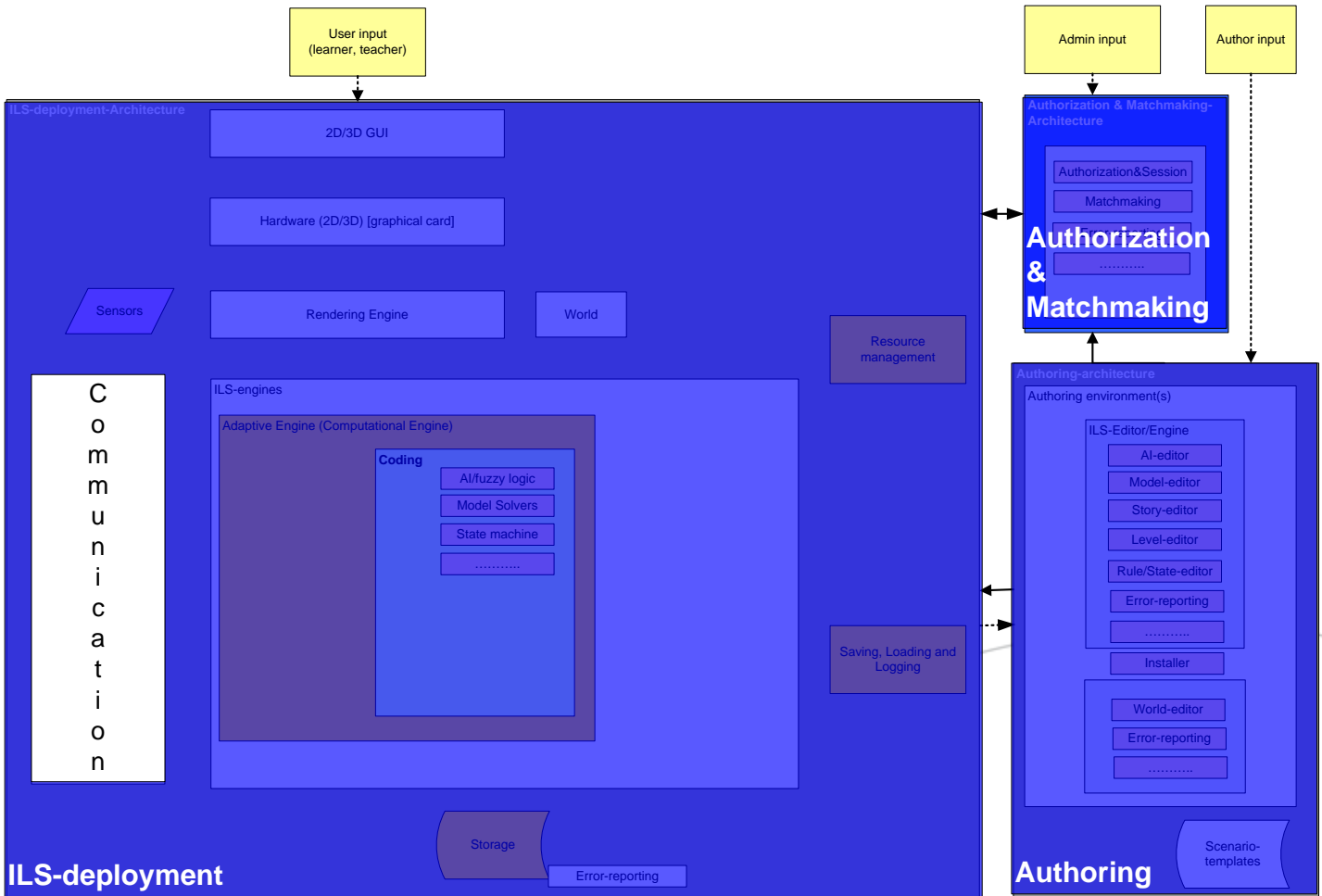
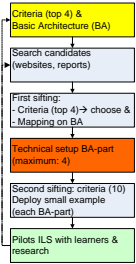


Basic Architecture - blueprint

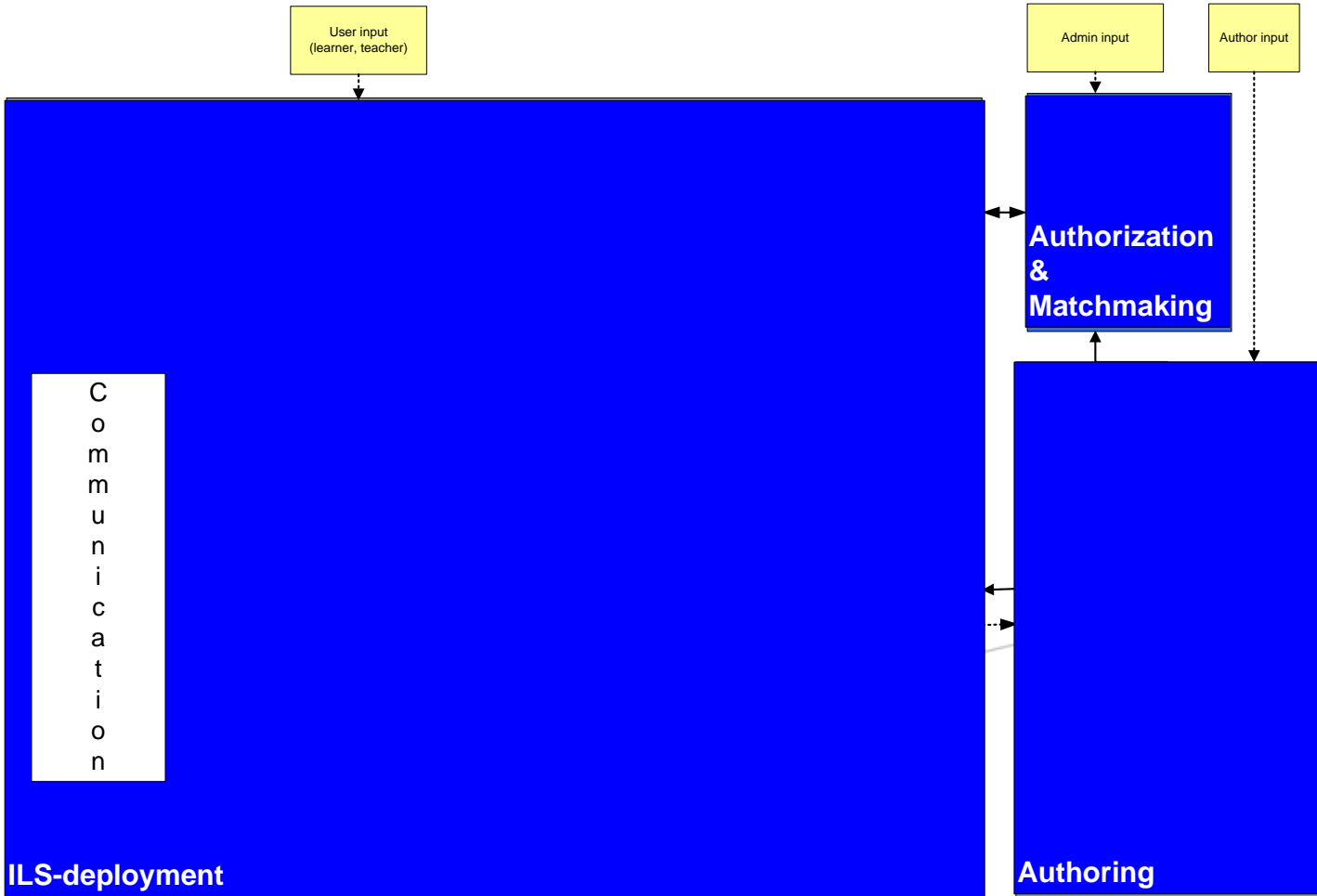
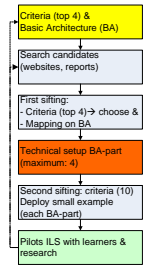
- Criteria (top 4) & Basic Architecture (BA)
- Search candidates (websites, reports)
- First sifting: Criteria (top 4) → choose & Mapping on BA
- Technical setup BA-part (maximum: 4)
- Second sifting: criteria (10) Deploy small example (each BA-part)
- Pilots ILS with learners & research

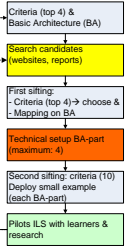


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Basic Architecture - blueprint

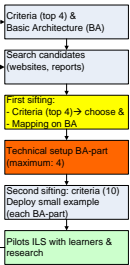




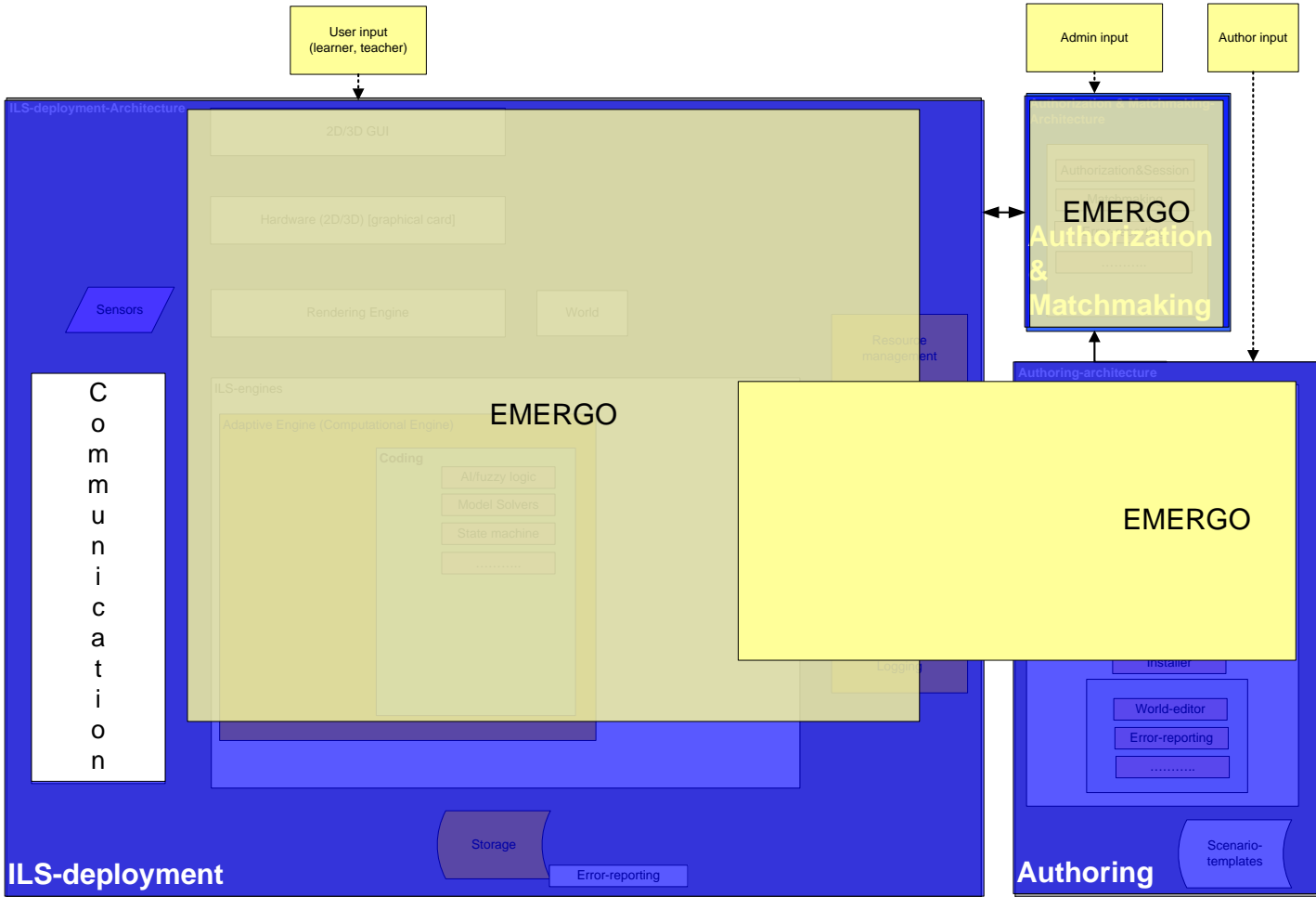
Search candidates – some options → first sifting

Wonderland
 Active Worlds
 Jogle
 Metaverse
 Hipihi
 Google Apps
 Croquet
 DX-framework
 Cybertown
 e-Adventure
 SAGE-engine
 Second Life
 Ogotio
 City Pixel
 MediaGrid
 OpenSim
 Unreal-3
 tixio
 3D-gamestudio
 Sauerbraten
 Pulse!!!
 Caspian Learning
 Habbo
 OLIVE
 Delta3D
 moove online
 Protosphere
 Universe
 Multi-verse
 C4-engine
 DX-studio
 Spring
 Unype
 MediaMachines
 Quakforums
 IMVU
 Kaneva
 Unity
 Gamemaker
 Sauerbraten
 Opensimulator
 Blender
 SimQuest
 EMERGO
 Whyville
 OGRE



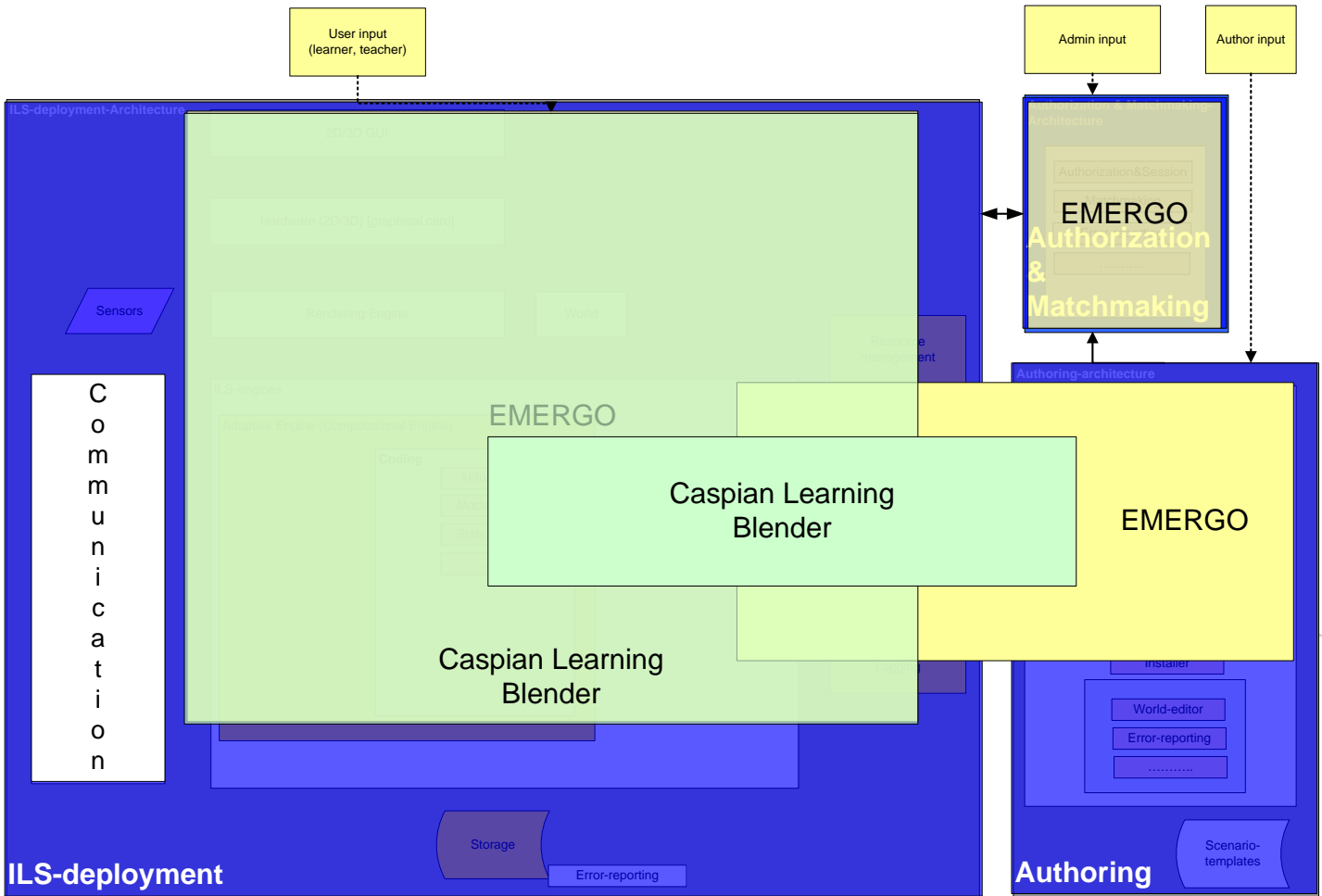


Mapping on BA

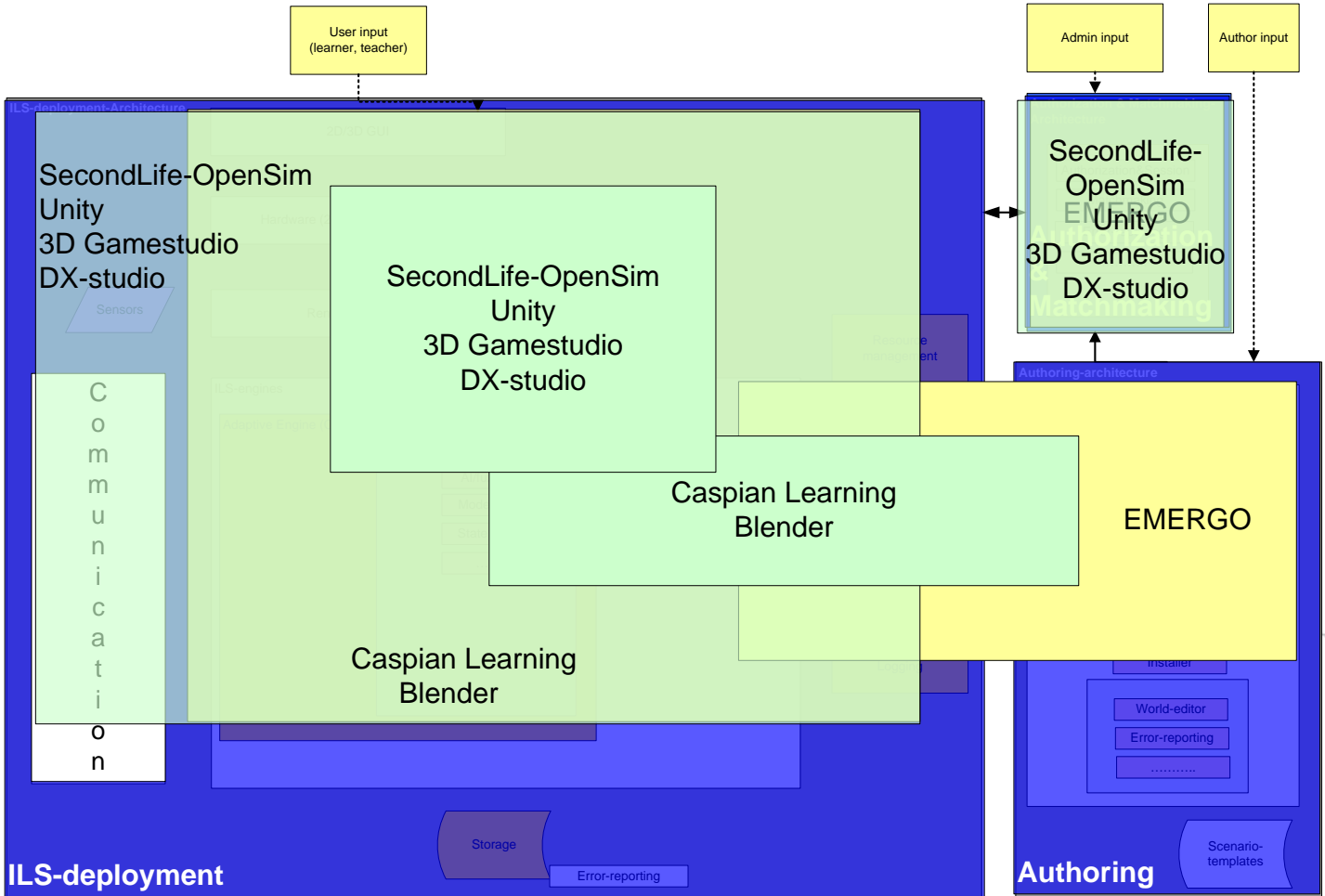
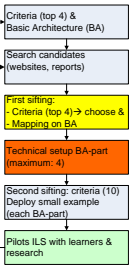


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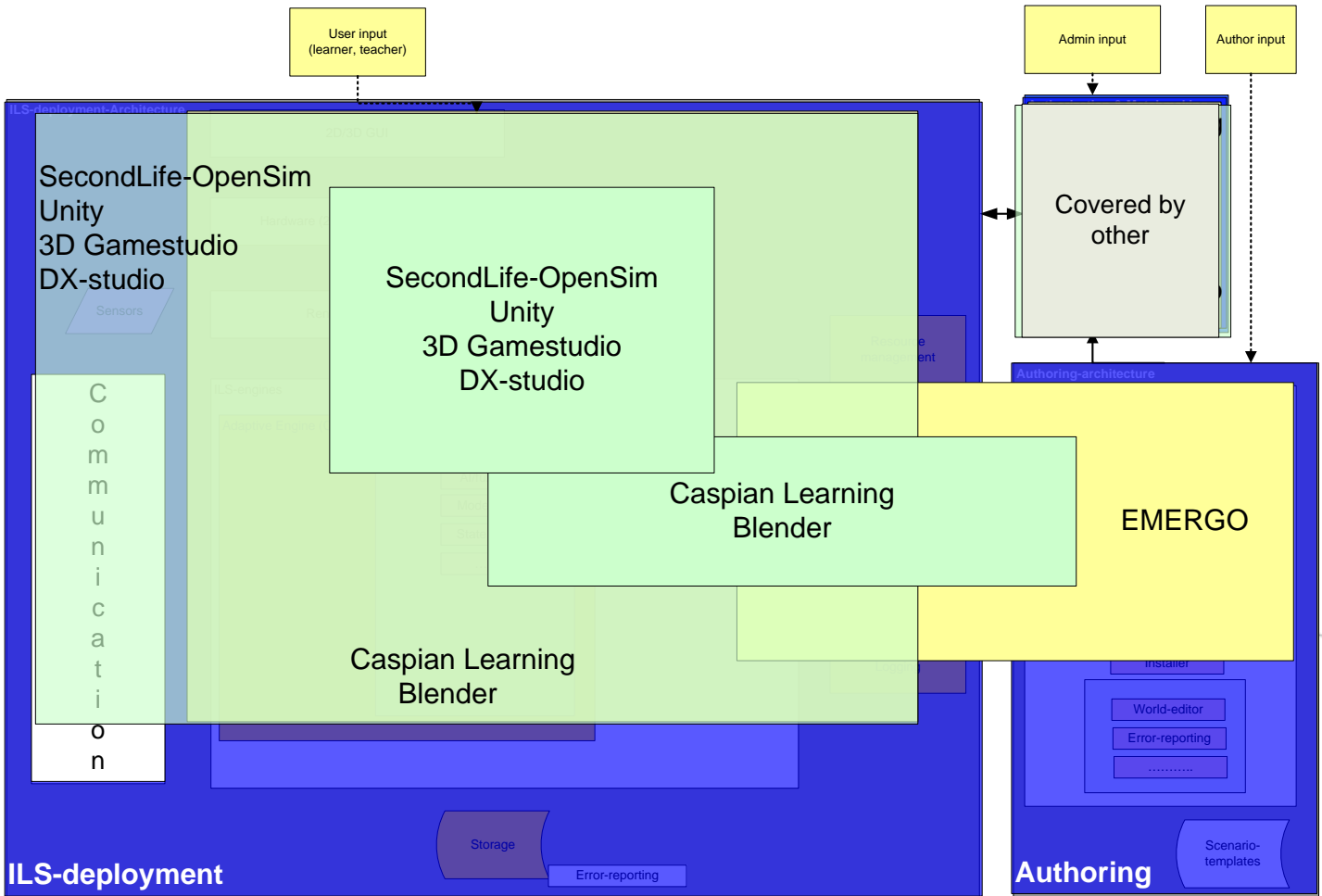


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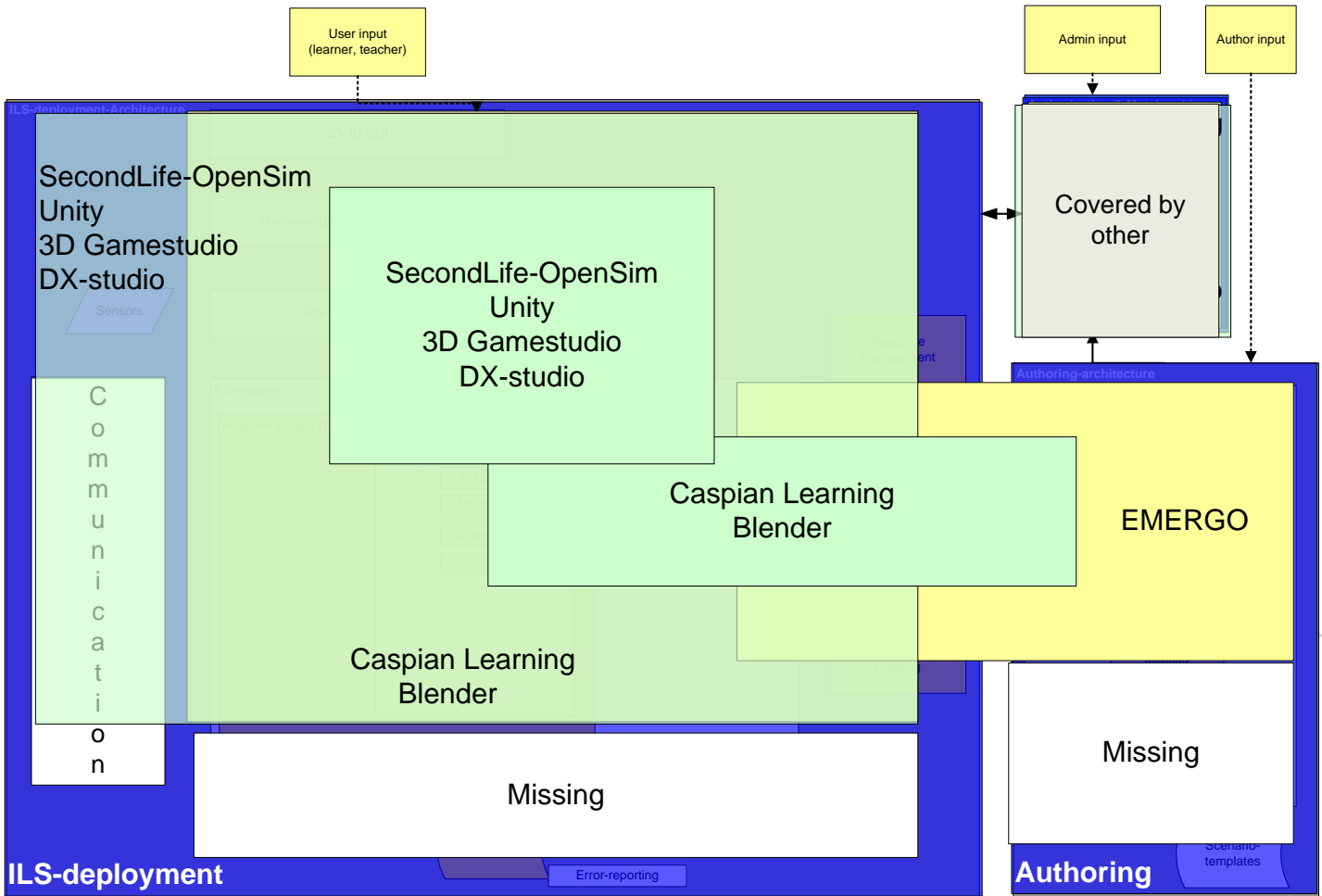
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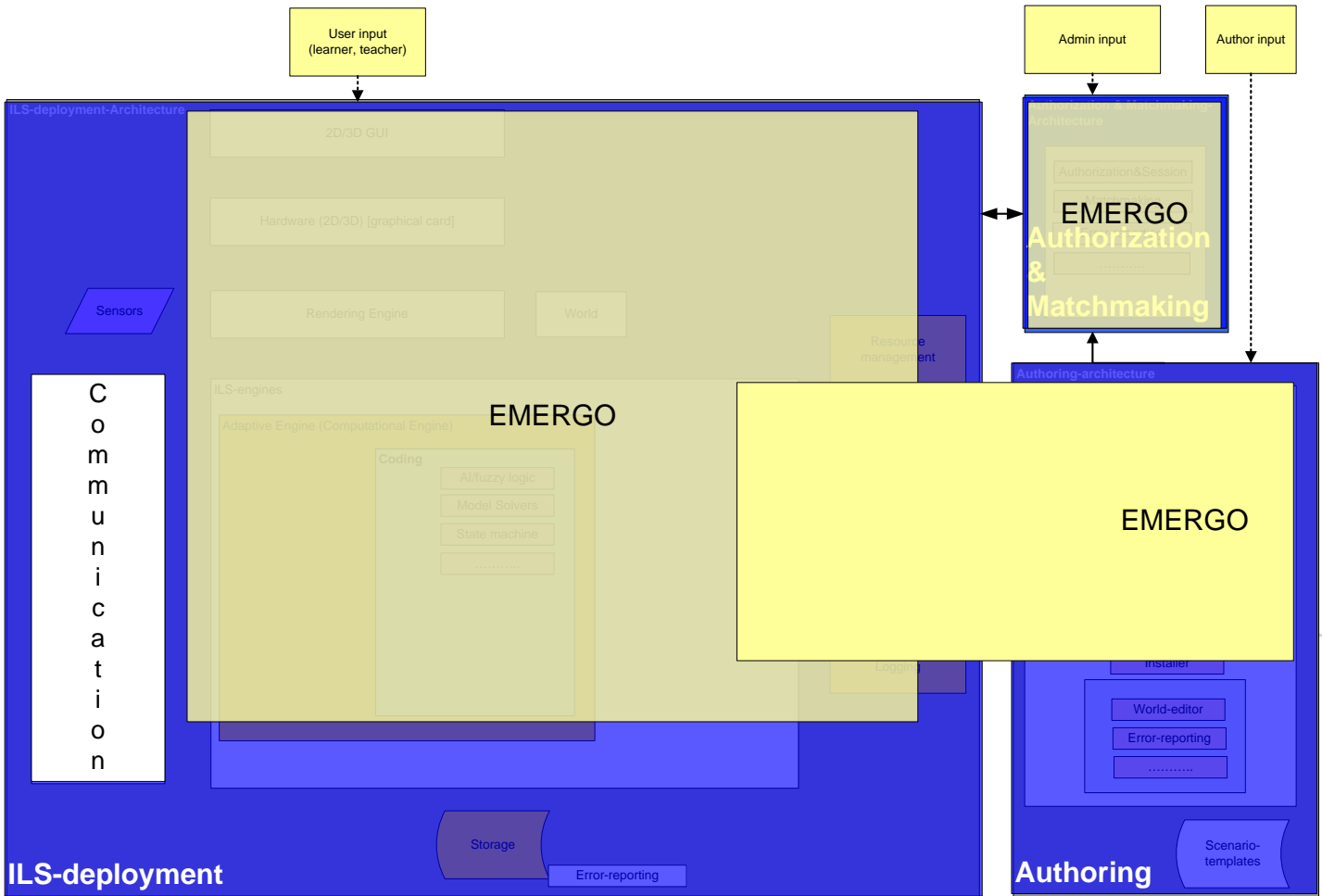
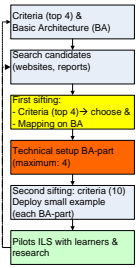


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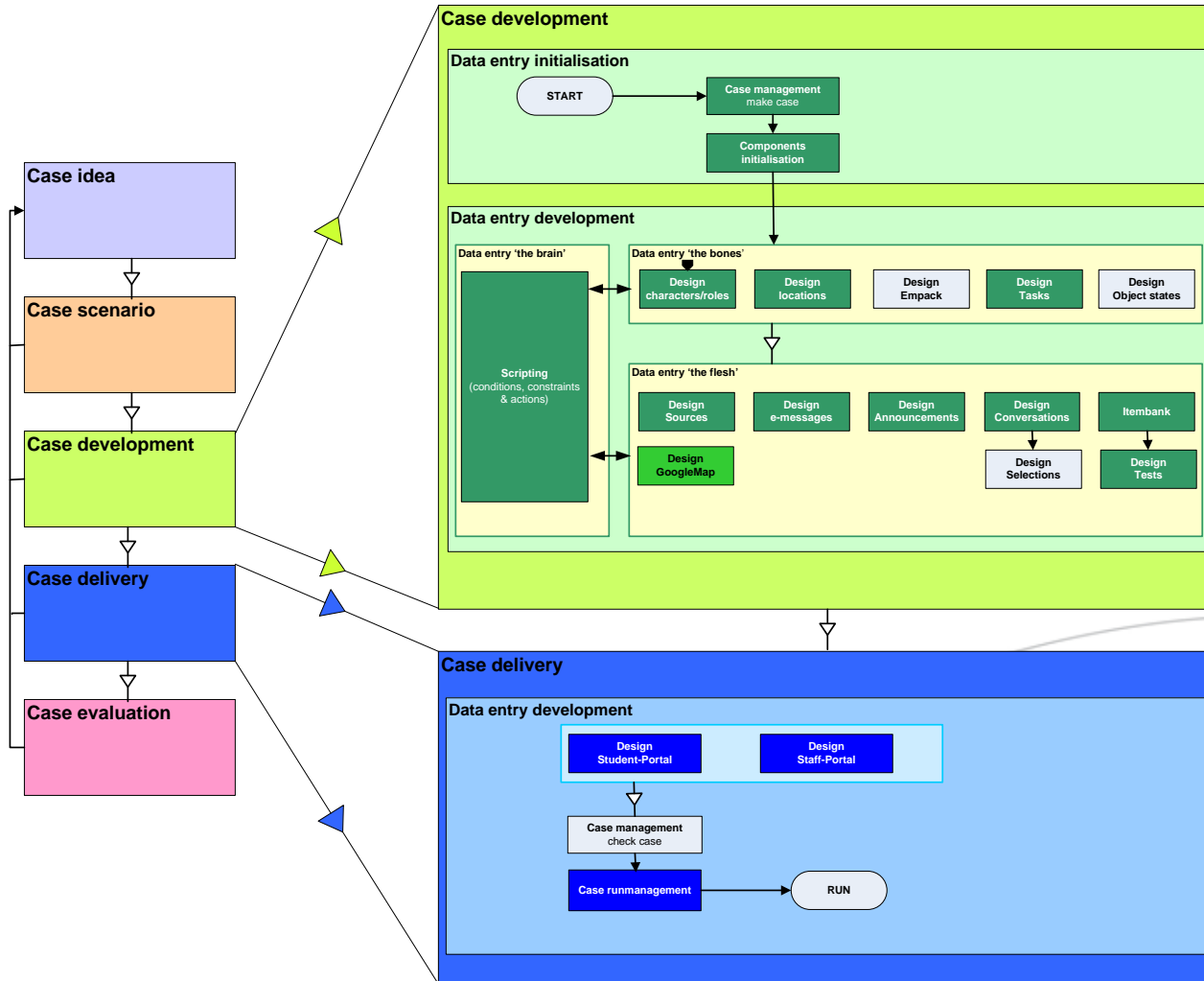
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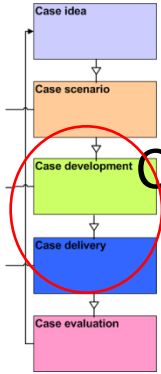
State of the art at CELSTEC - EMERGO



EMERGO methodology & toolkit



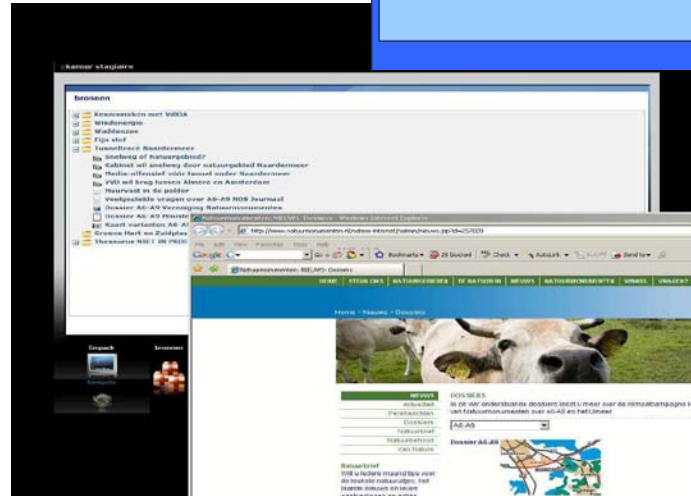
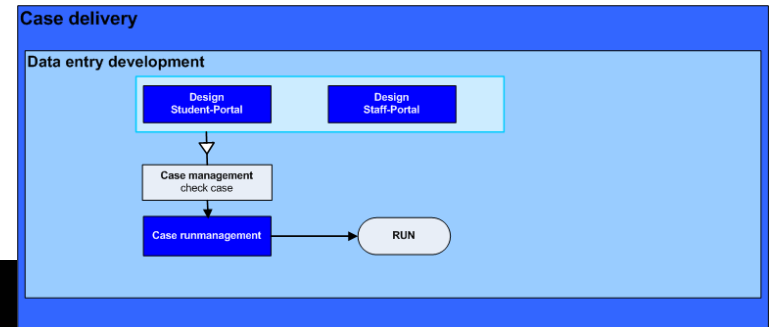
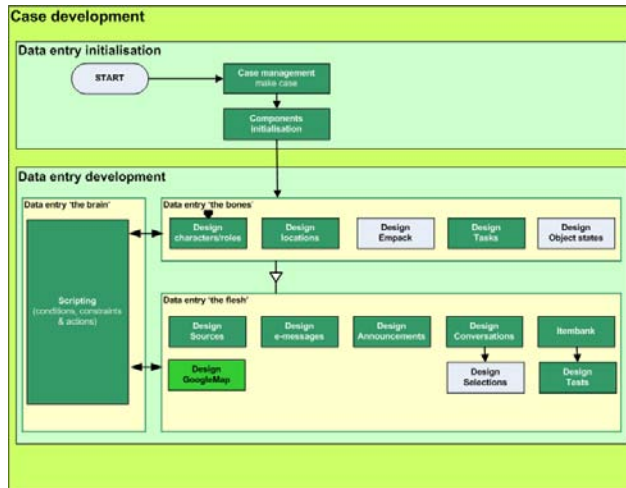
EMERGO toolkit



Components for data entry detailed scenario (development)

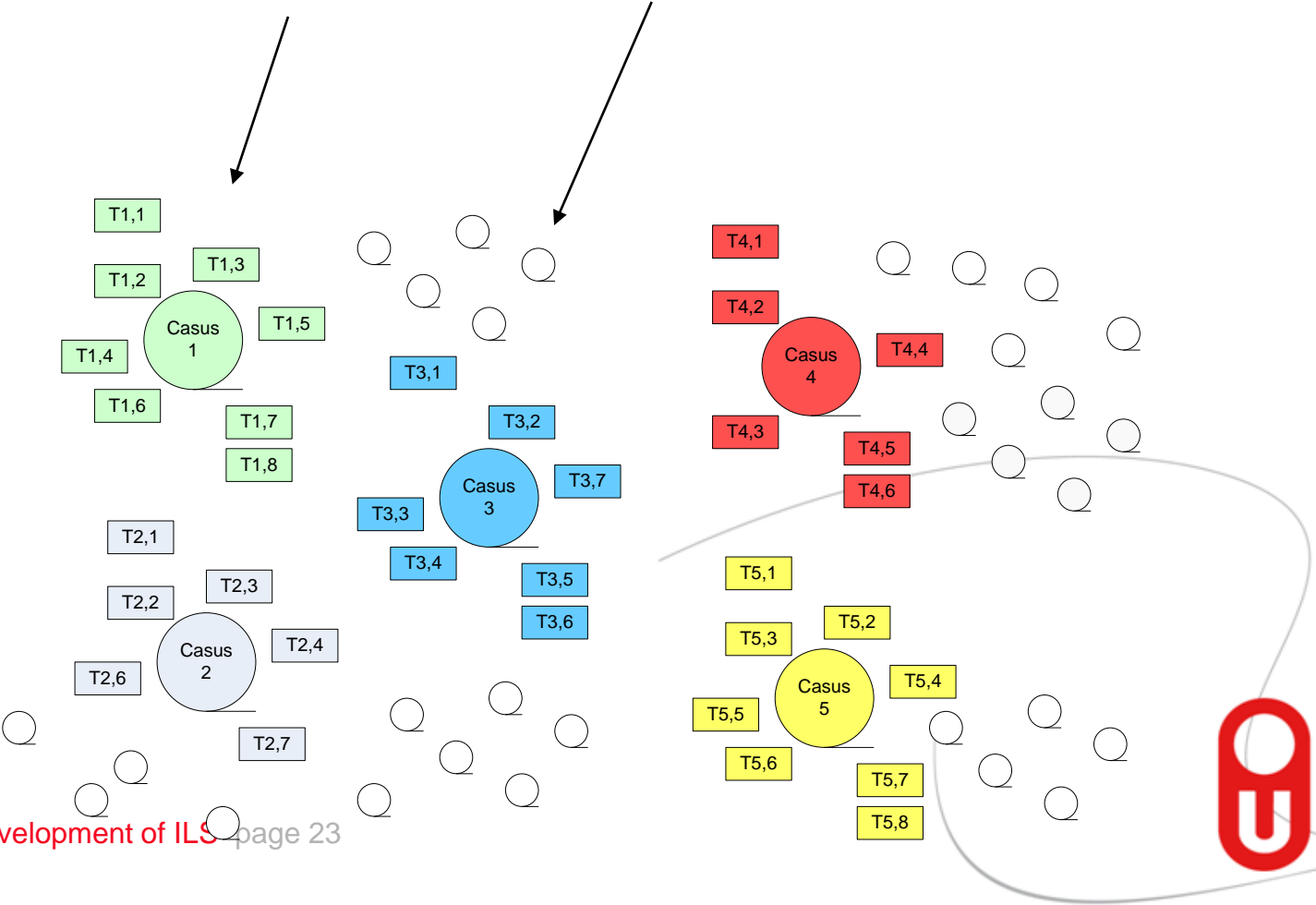
Player for testing (development) and delivery

Components for case delivery (delivery)



flexibility – reusability - maintenance

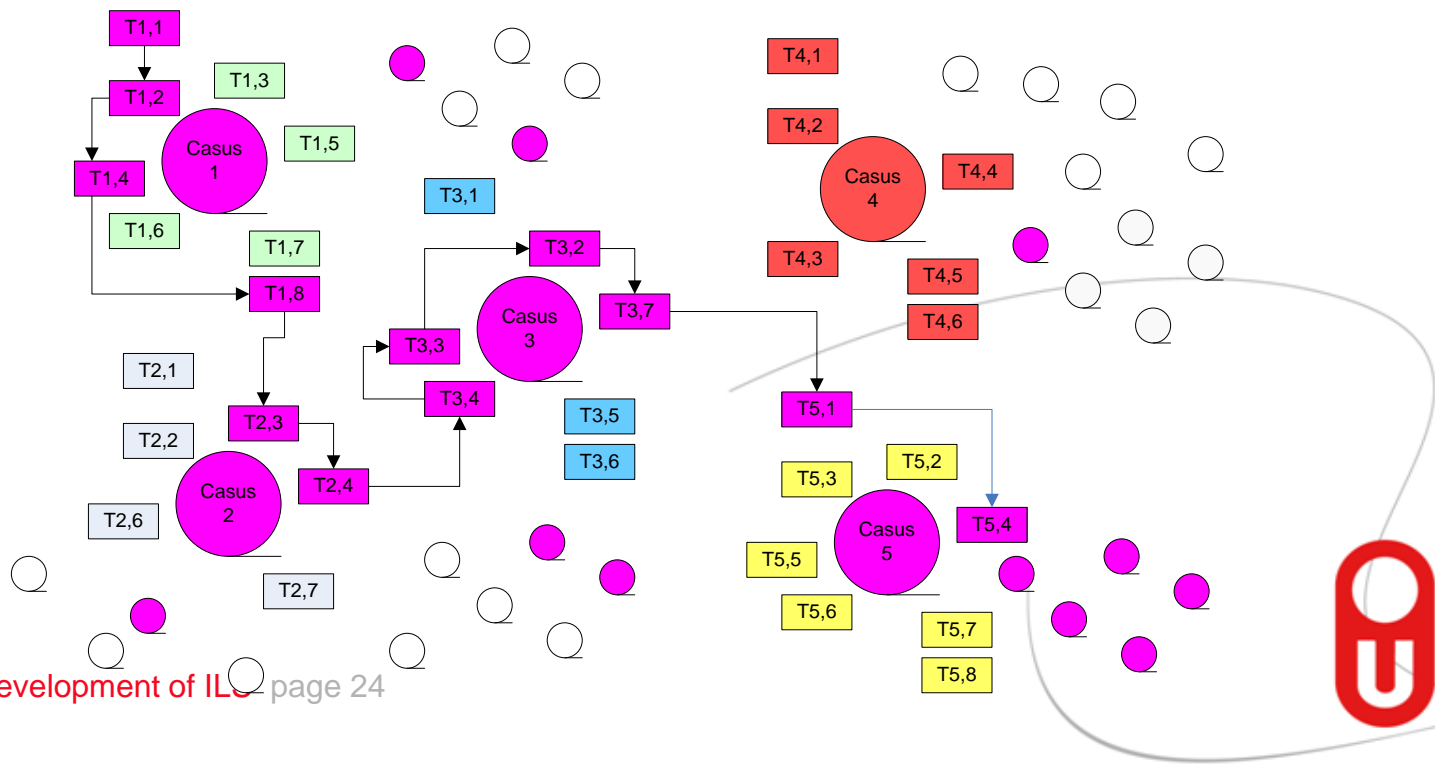
Case library: separation tasks and resources



flexibility – reusability - maintenance

Case library: separation tasks and sources

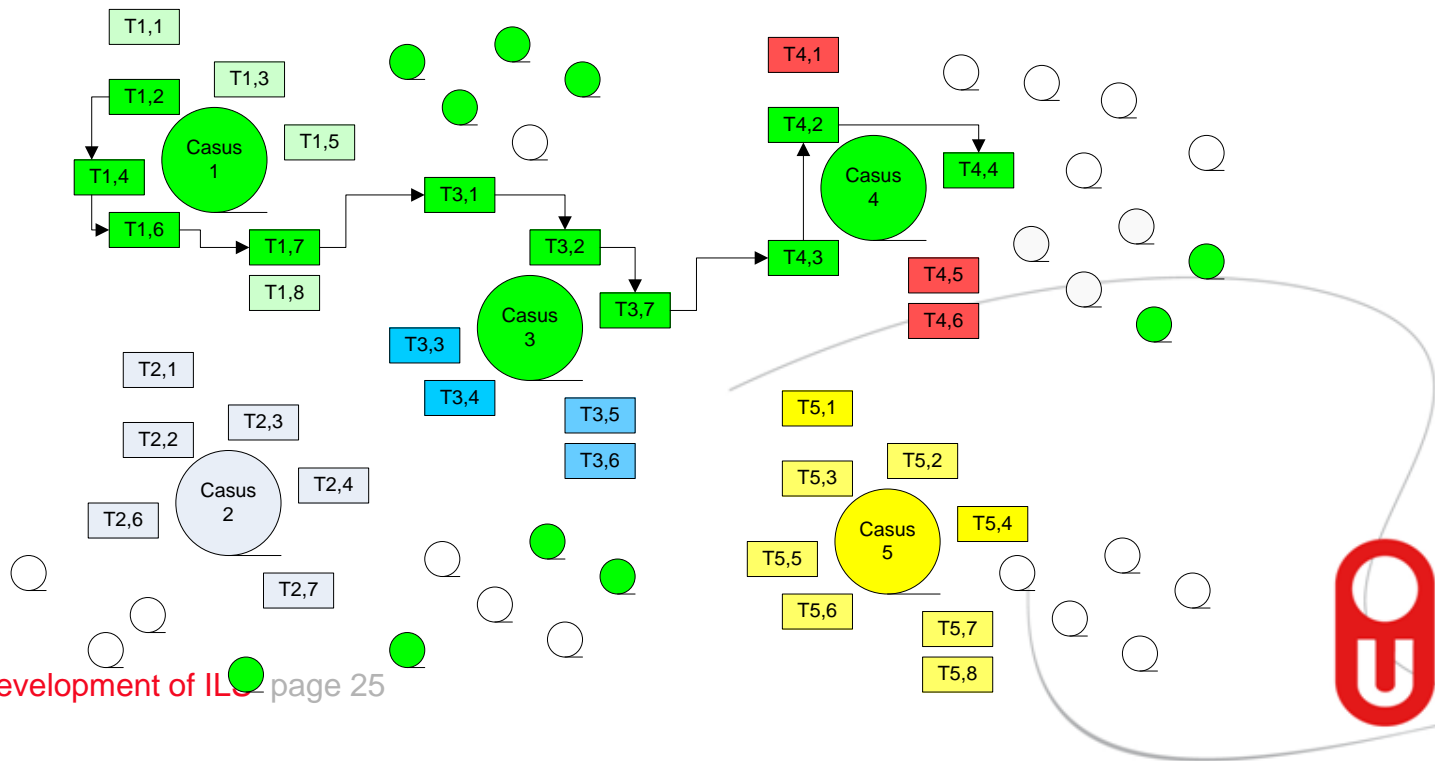
[exploitation partner 1 : structure, subset tasks-sources]



flexibility – reusability - maintenance

Case library: separation tasks and sources

[exploitation partner 2: other structure and subset]



EMERGO demonstrators/templates (examples)

CSI Heerlen (template logic reasoning and truth detection)

[<http://emergo.ou.nl/emergo/community/demonstrators.htm>]

- single-user
- unexpected events
- time constraints
- score (compared to other players)

Limburg canon (template negotiation)

- multi-user
- prosuming
- score (competition)



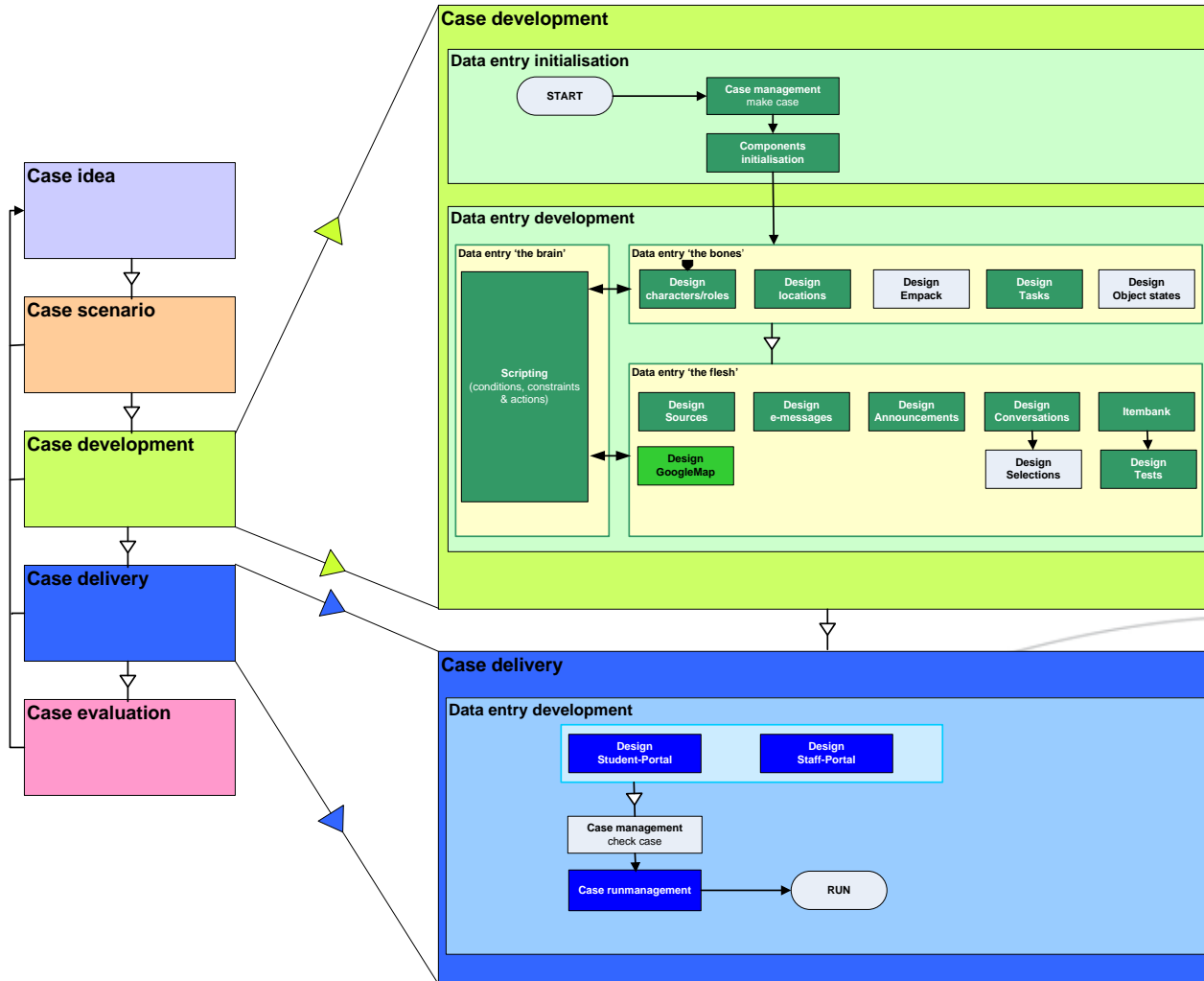
Your experiences with CSI Heerlen

CSI Heerlen (template logic reasoning and truth detection)

- single-user
- unexpected events
- time constraints
- score (compared to other players)

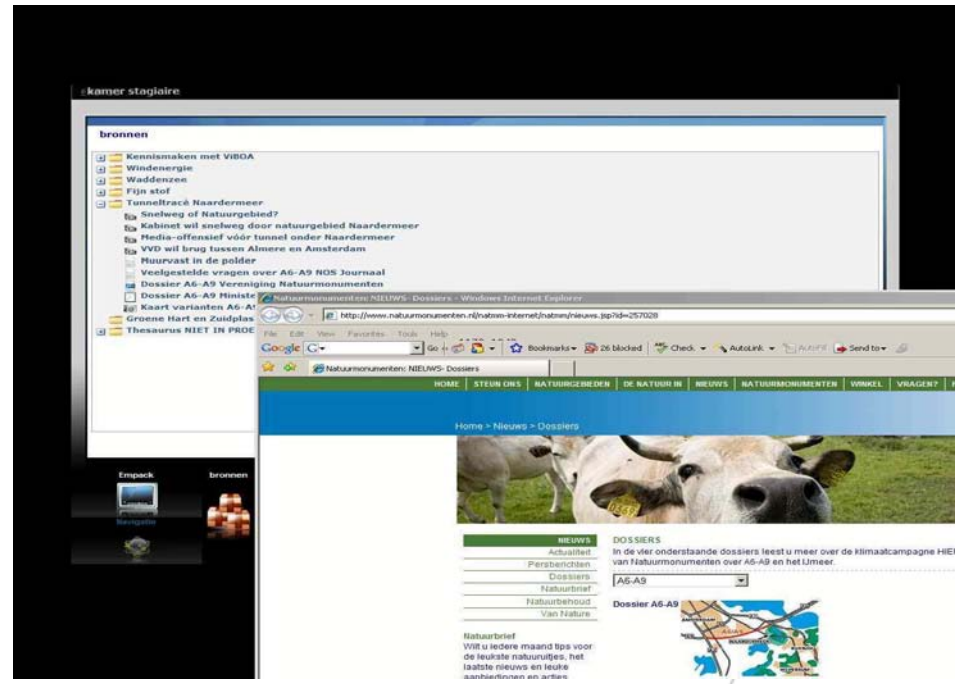
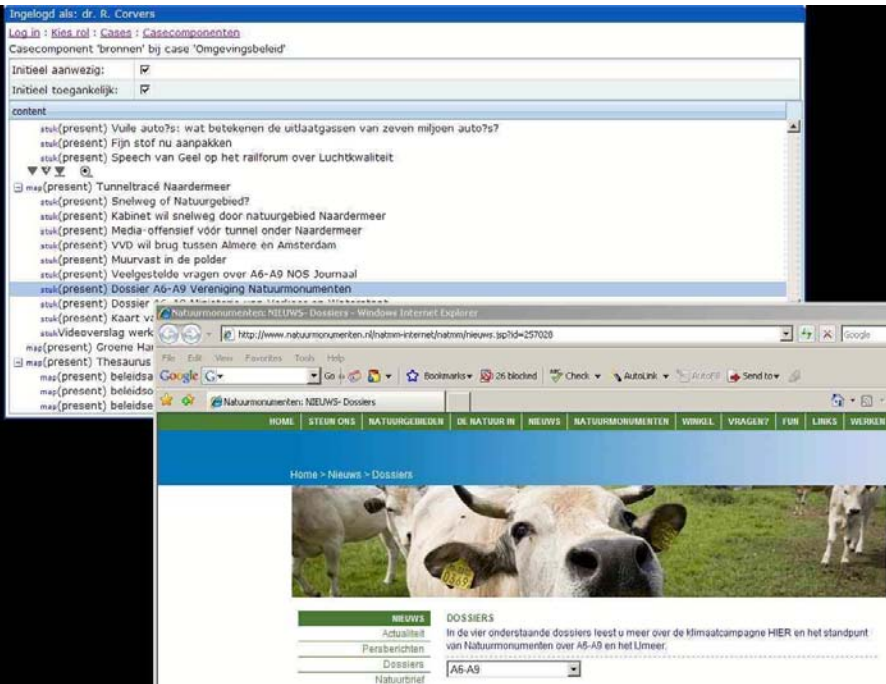


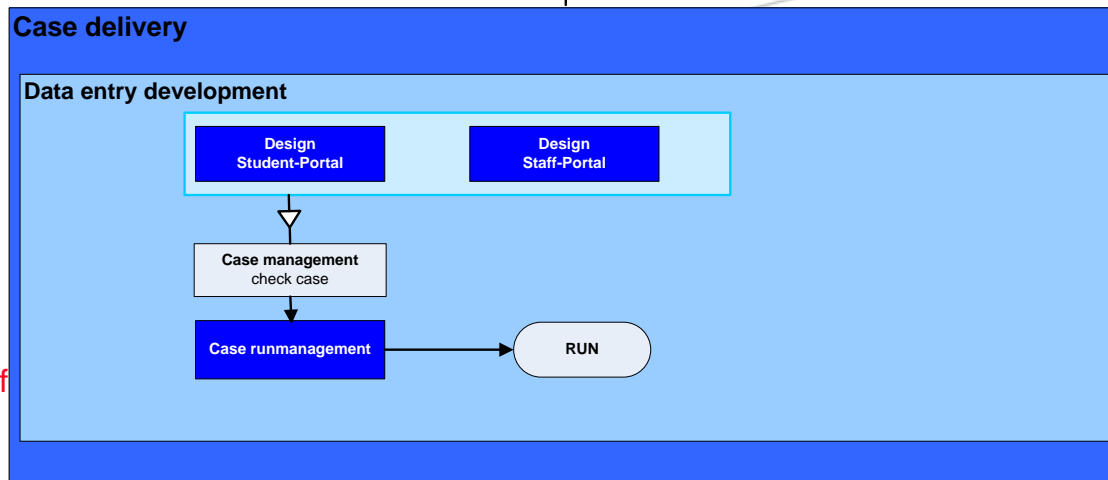
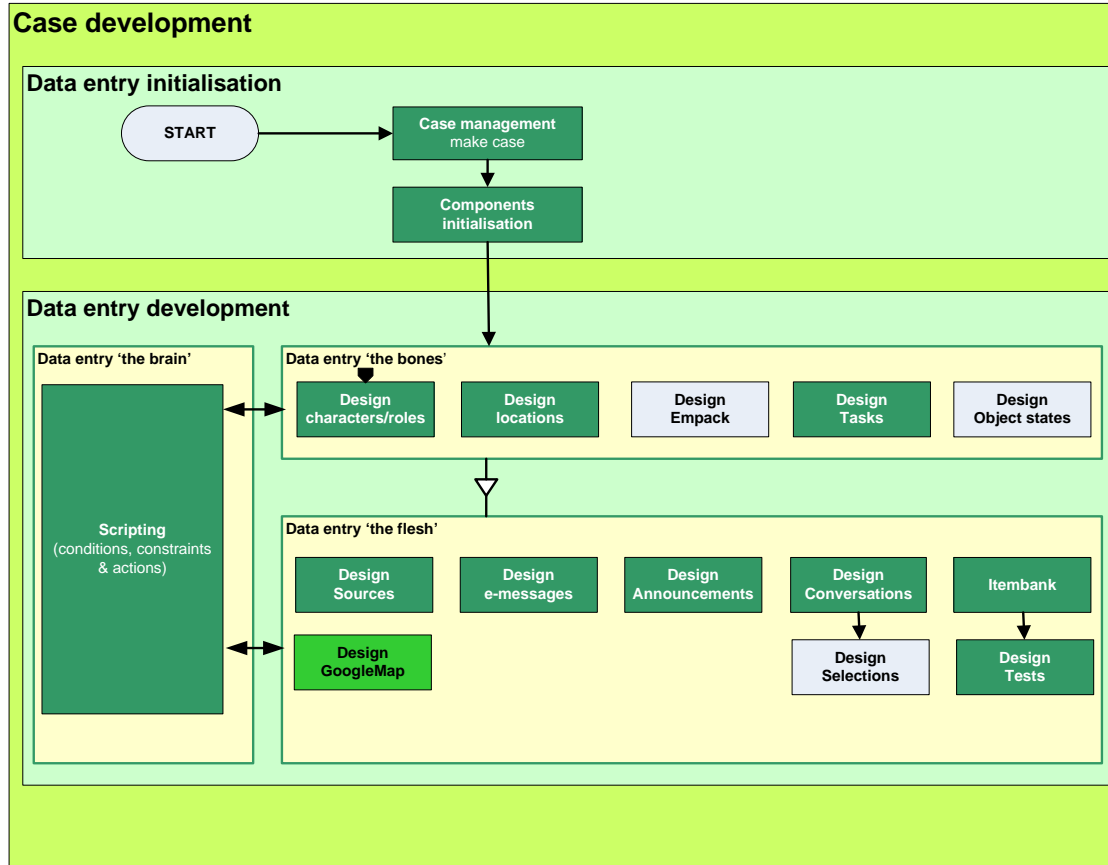
EMERGO methodology & toolkit



EMERGO: data entry (Toolkit)

EMERGO: player



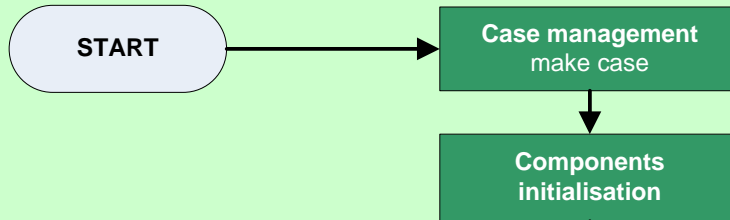


Swift development of

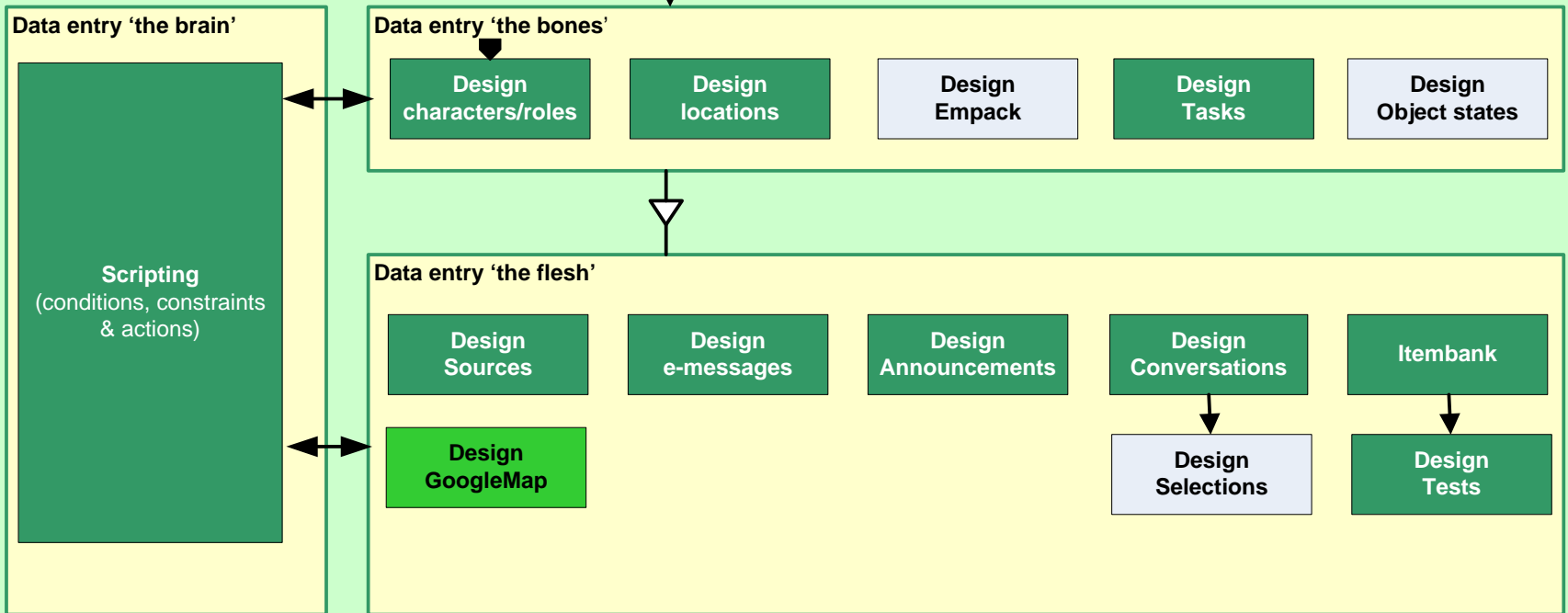


Case development

Data entry initialisation

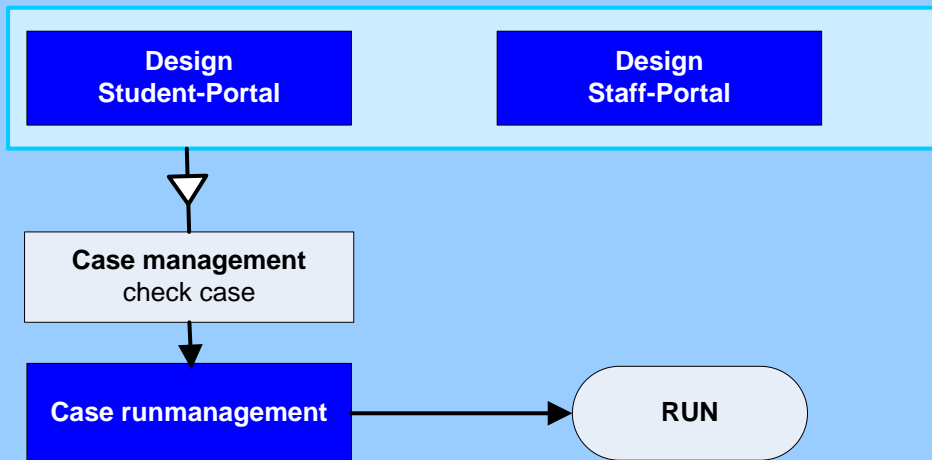


Data entry development



Case delivery

Data entry development



Data-entry for CSI Heerlen

CSI Heerlen (template logic reasoning and truth detection)

- single-user
- unexpected events
- time constraints
- score (compared to other players)

Conversations component

Scripting component

- Predicate: condition + action(s)
- Condition types
-



Discussion & Questions

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Thank you for your attention ...

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